



AN EYE FOR AN EYE: NAVY DENTISTRY AND THE DEVELOPMENT OF THE ACRYLIC EYE

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"It's an eye for an eye. The New eye is not flesh and it has no ability to see—but no one glancing at it would ever suspect that."

~James Nevins Miller, Mechanix Illustrated Magazine, June 1946

The year is 1944. At Naval Hospital Bethesda, Md., doctors are no longer able to procure glass eyes for wounded veterans. Hearing about new advances in ocular prosthetics, the hospital's Chief of the Ear, Nose and Throat Department asks researchers at the Navy Dental School to explore solutions to the glass eye shortage. Within the year, three Navy dentists and a medical illustrator devised a method for fabricating acrylic eyes that forever revolutionized the field of ocular prosthetics.

Since the 19th century, German artisans in the state of Thuringia were considered the unrequited masters of artificial glass eye fabrication; their craftsmanship was so unparalleled that prior to World War II almost all of the artificial eyes in the United States had been manufactured by Thuringian glass blowers. The war may have placed a halt to these imports, but also set the stage for Navy dentists Capt. Rae Pitton, Lt. Cmdr. Phelps Murphey, Lt. Cmdr. LaMar Harris and medical illustrator Lt. Cmdr. Leon Schlossberg of the Hospital Corps.



Lt. Cmdr. Phelps Murphey, one of the originators of the Acrylic Eye. (Photo from BUMED Archives)

socket.

Due to their extensive knowledge of impression methods, plastic materials, anatomy of the head and aesthetic appearance of the face, it was logical that dentists and an illustrator became involved in the research.

The acrylic eye was fabricated much like a denture base. The dentists would make an impression of the eye socket using an alginate or hyper colloid molding. Once the impression was removed, a stone working cast was poured over the impression. The working cast was removed from the impression, lubricated and a plaster lock was poured over it. The cast was cut vertically to allow removal of a wax pattern. The pattern/model was then smoothed, dropped in ice water, removed, and lubricated with liquid petroleum before trying out in the eye

The dentist fitting the eye would then study the lid reaction and profile view to ensure that it mimicked the contour of the uninjured side. If deemed satisfactory, the model was duplicated with acrylic material. After the prosthetic was fabricated, the medical illustrator was then tasked with painting the eye—complete with sclera, blood vessels and iris—to ensure it was an exact replica of the patient's existing eye.

Unlike its glass counterpart, the acrylic eye was very durable, and could be adapted to utilize the remaining eye muscles. It also afforded maximum comfort to the patients. And unlike the glass eye, each acrylic prosthetic was specially fitted for the recipient.

In November 1944, the Naval Dental School instituted a 6-week course to teach dental officers this technique. Course graduates would be assigned to naval hospitals at Great Lakes, Ill., Philadelphia, Penn., Seattle, Wash., San Diego, Calif., and St. Albans, N.Y.

The Navy's acrylic eye caught the public's imagination so much that the Bureau of Medicine and Surgery and the Naval Dental School were besieged with letters from people around the world wanting to be fitted with acrylic eyes. Navy Medicine's policy held that only individuals who were patients at naval hospitals would be authorized for fittings. Even military dependents were not immediately granted access. The only exceptions made were children of two Navy Sailors—a 9-month old born with an eye tumor and a 9-year old boy who lost an eye in an accident. Both would be fitted with prosthetic eyes in 1946.



Sailor fitted with Acrylic Eye, ca 1944. (Photo from BUMED Archives)

Due to diminishing need for artificial eyes post-war, and the loss of the so-called “iris illustrators” to demobilization, acrylic eye programs were ended at all naval facilities after May 15, 1946 except for the Naval Dental School, Naval Hospital Philadelphia, and Naval Hospital San Diego.

The acrylic eye would be the subject of two training films, and one of its originators, Dr. Phelps Murphey, would travel across the United States and the globe teaching the Navy technique.

Today, the acrylic eye is still commonly used as an ocular prosthetic.

[1] Note: Beginning in 1941, the Navy established an officer corps within the Hospital Corps. Hospital Corps officer positions were deemed “temporary” for the war effort but helped ensure that the Navy Medical Department had necessary expertise to execute its wartime mission. Many of the Hospital Corps officers and allied scientists still serving in the Navy in 1947 would be subsumed into Medical Service Corps.

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